ABSTRACT

Polyfluorinated ethers and polyfluorinated ketones and mixtures thereof, preferably polyfluorinated ethers such as methyl (trifluoroethyl) ether ($CH_3OCH_2CF_3$), methyl (heptafluoropropyl) ether ($CH_3OCF_2CHFCF_3$), di(trifluoroethyl) ether ($CF_3CH_2OCH_2CF_3$), methyl (hexafluoropropyl) ether ($CH_3OCF_2CF_2CHF_2$), methyl (pentafluoropropyl) ether ($CH_3OCH_2CF_2CF_3$), methyl (perfluorobutyl) ether ($C_4F_9OCH_3$), ethyl (perfluorobutyl) ether ($C_4F_9OC_2H_5$), and polyfluorinated ketones such as methyl (perfluoromethyl) ketone (CF_3COCH_3), perfluoromethyl (trifluoroethyl) ketone ($CF_3CH_2COCF_3$), methyl (perfluooroethyl) ketone ($C_2F_5COCH_3$), methyl (perfluoropropyl) ketone ($F_3CF_2CF_2COCH_3$), perfluoroethyl (perfluoropropyl) ketone ($CF_3CF_2CF_2COC_2F_5$), methyl (octafluorobutyl) ketone ($C_2F_5CFHCF_2COCH_3$), di(perfluoropropyl) ketone ($CF_3CF_2CF_2COCF_2CF_2CF_3$), and mixtures thereof meet the requirement for not adversely affect atmospheric chemistry and would be a negligible contributor to ozone depletion and to green-house global warming in comparison to the fully halogenated hydrocarbons and are suitable for use as working fluids for use in thermal energy conversion systems such as an organic Rankine cycle system.